CS 161
Intro to CS I

C++ Strings, Errors, and Debugging
Odds and Ends...

• Last week to demo Assignment 1!
• Sign up for demoing Assignment 2 early!!
• Work on Assignment #3 Design due Sunday!!!
How do we read a string of chars?

- User-defined type in string library
  #include <string>
- Declare/Create type
  string mssg;
- Read with cin or getline
  cin >> mssg;  //get a word
  getline(cin,mssg);  //get a line of txt/sentence
Using a String

• Finding the Length
  mssg.length()

• Getting a specific character
  mssg.at(0) //Gives you the first character
Documentation

• cplusplus.com
• Letters - ASCII chart
Error Handling

• What can we do to prevent these errors?
  – Overflow
  – Divide by zero
  – Bad input by the user
Demo...
Programming Errors

• Syntax errors
  – Misuse of C++ language
  – How are they caught?

• Logic errors
  – Doesn’t perform task correctly (aka. bugs)
  – How are they caught?

• Runtime errors
  – Stops your program from running
  – How are they caught?
Syntax Error Examples

• Missing main function
• Use of identifier not declared
• Misspelled Words
• Forget a Semicolon
• Forget Required Keyword
• Missing quote, curly brace, and parenthesis
• Use of single quotes instead of double
Logic Error Examples

• Poorly written programs
  – Add instead of subtract (incorrect operation)
  – Using last two digits for date
  – Same error message for different errors
  – Program that never ends
  – Add one to the largest integer (could be syntax)
Runtime Error Examples

• Open a file that doesn’t exist
• Segmentation fault
  – Infinite loop that eats memory
  – Divide by variable that is zero
Debugging Errors

• Syntax:
  – **READ compiler errors** (pay attention to line #)
  – Use **google** to search for error

• Logic/Runtime
  – Use **std::cout** to find where the code is breaking
    • Print variable values
    • Print indicator messages
  – **Trace** through the code
  – **Comment** out code